



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/427,815	10/27/1999	DAVID P. ROSSUM	17002-01400U	3803

21186 7590 01/25/2006

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH
1600 TCF TOWER
121 SOUTH EIGHT STREET
MINNEAPOLIS, MN 55402

EXAMINER

GRAHAM, ANDREW R

ART UNIT	PAPER NUMBER
----------	--------------

2644

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/427,815	Applicant(s) ROSSUM, DAVID P.	
	Examiner Andrew Graham	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2644

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. **Claims 1-33** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, the specification does not reasonably convey that the differing output sample rates are "intended" output sample rates, as is delimited in each of the independent claims. Claims 1 and 17 are further not enabled for the limitations of "said plurality of differing intended output sample rates for any output data sample in response to a variation in an intended rational sample rate conversion ratio". Claims 12 and 23 are not enabled for the limitation of "controllably variable at any output sample by interpolation".

As stated above, the specification does not describe this subject matter in such a way as to reasonably convey to one skilled in the

Art Unit: 2644

relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

The pertinent parts of the specification, as submitted in as a clean copy on 6/5/2003, appear to be:

- page 2, lines 18-21: "For example, to change the sample rate of a signal sampled at rate R to a new rate $R' = R'L/M$, a number of zero value samples equal to L-1 are inserted between each sample of the signal (L and M are integers which can slowly change with time)".
- page 12, lines 21-page 13, line 2 "Also, it is not practical to vary R/R' in real time because the restriction to small integer ratios... causes changes in rate to abruptly alter coefficients, producing audible defects".
- page 20, lines 7-20: "Although the interpolator 604 may consist of any known interpolation technique which can be parameterized for transition band width, it is preferred that interpolator 604 perform an Nth order FIR sum of products convolution on its input w_k to produce each output y_m such that $y_m = w_{k+N/2-1}C_0(f) + w_{k+N/2-2}C_1(f) + \dots + w_{k+N/2}C_{N-1}(f)$ where y_m is the output sample interpolated at the fractional sample period f beyond sample k of signal w (i.e. $m = k+f$), and $C_i(f)$ is one of N coefficients which are computed by linearly interpolating from two values obtained from a table containing the impulse response of the FIR filter associated with the interpolator

Art Unit: 2644

which has been designed to have the desired transition band width passband ripple and stopband rejection characteristics".

- page 34, lines 7-14: "Referring to Fig. 15, the advantage of the preferred embodiment of the interpolator in all of the aforementioned sample rate converters is that it facilitates providing a dynamically changing sample rate. As a result, the sample rate ratio may dynamically change. Consider, for example, a sample rate converter 1500 that provides sample rate ratios from slightly more than 1/3 to infinity (in practice an arbitrarily high value). In this case, the input signal x_{2n} is first upsampled by a factor of two using a half-band upsampling filter 1502. The sample rate is then converted to twice the desired output rate using a wide transition band interpolator 1504".

Though these passages collectively support the concept of a 'dynamically' varying output sample rate, they do not provide the necessary specificity to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention as conveyed in the limitations of "differing intended output sample rates" or "for any output sample rate in response to a variation in an intended rational sample rate conversion ratio" or "controllably variable at any output data sample by interpolation". The cited passage of page 2 does not teach or suggest 'intent' or 'control' as part of this slowly varying

Art Unit: 2644

with time (leaving drift as a applicable cause, as evidenced by prosecution history). The cited passage of page 12, while varying R/R' , does not convey that either R or R' are known, controlled rates, or any other basis on which the ratio is varied. Nor does 'real-time' convey the specific "at any output data sample" or require that the ratio represented by R/R' be rational. The cited passage of page 20 does not provide the basis of determining (f), remaining silent as to how or if it is actively, or in an intended manner, controlled. "Any known interpolation technique" does not clearly convey the specific intended, controlled interpolation technique as presently claimed. The cited section of page 34 particularly appears to contradict the limitation of "intended rational sample rate conversion ratio" because "infinity" is not a rational ratio and "arbitrarily high" does not convey "intended" or "controllably".

As supplemented by the analysis in the above paragraphs, the concepts of "intent" or "control" in this varying are absent from the specification; the prosecution history illustrates an attempt to provide distinction from drift and other imperfect clocking or delay situations that would uncontrollably, per se, influence the sampling of a digital signal. Yet, it is respectfully submitted that the specification, as required by the first paragraph of 35 U.S.C. 112, does not provide a distinct, reasonable basis for such a narrowed limitation, including that of active "control" or "intent".

Art Unit: 2644

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 17-33** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 claims three different "codes" and a "computer readable storage medium". However, it is not claimed that the "medium" stores the three "codes" listed in the claim. As such, these codes are effectively non-functional descriptive material, because they are not claimed in a manner that makes them functional (that is, they are not claimed to be included in the product in manner that they can be read by the computer). Minor correction to the wording of this claim is required. Claims 18-22 are rejected at least for their dependency thereon.

Claim 23 involves a similar issue. The claim delimits a medium "for storing code, said code including". However, this wording affords the interpretation of storing such code as an "intended use" (that is, it is intended to store this code, but is not clearly required to store said code). Affirmative language is needed in this claim to clearly require that said code "is" stored on said storage medium, as opposed to having a medium that is "for" or "may" store

Art Unit: 2644

said code. At present, similar to above, these codes are effectively non-functional descriptive material, because they are not claimed in a manner that makes them functional or actually executed.

Claims 24-33 are rejected at least for their dependency thereon.

Response to Amendment

3. The declaration under 37 CFR 1.132 filed 11/9/2005, coupled with the claim amendments, is sufficient to overcome the rejection of claims based upon Chester.

Response to Arguments

4. Applicant's arguments with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Graham whose telephone number is 571-272-7517. The examiner can normally be reached on Monday-Friday, 8:30 AM to 5:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2644

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ag


XU MEI
PRIMARY EXAMINER